HIV Prevention

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CDC's International Activities Support Global HIV Prevention Efforts

The Centers for Disease Control and Prevention's (CDC) research program is dedicated to advancing biomedical and behavioral science that promotes HIV/AIDS prevention in the United States and worldwide. The focus is on research, technical assistance, and training aimed at understanding the dynamics of HIV transmission and on developing and improving prevention technologies and strategies to control the spread of HIV/AIDS and minimize its consequences.

The World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimate that, worldwide, as many as 42 million people have been infected with HIV since the pandemic's onset, and each day 16,000 more become infected. Recognizing the urgency of the pandemic, CDC is committed to HIV/AIDS research within, as well as outside of, U.S. borders. To understand AIDS on a global level, research must address issues and conditions unique to different countries and to communities within countries. Many developing nations severely affected by the epidemic lack the research capacity, public health infrastructure, and financial and human resources to respond effectively. CDC's international work underscores the importance of developing, implementing, and evaluating diverse interventions to address issues among varied populations and to do so quickly and cost-effectively.

Collaborative efforts yield prevention benefits

Through collaborative agreements with governments of Côte d'Ivoire (Projet RETRO-CI), Thailand (HIV/AIDS Collaboration), and Uganda, as well as in multiple other settings, CDC supports HIV/AIDS research field stations and participates in studies designed to increase our understanding of the epidemiology of HIV-1 and HIV-2 infections and to facilitate prevention and care efforts in the host countries and the United States. Specific research areas include the following:

- ***Reducing mother-to-child (perinatal) HIV transmission*** in developing countries around the world, where 1,600 babies are born with HIV or infected through breast-feeding each day. Collaborative research by CDC, the Thai Ministry of Public Health, and Mahidol University demonstrated that a short course of zidovudine (also known as AZT) given late in pregnancy and during delivery reduced the rate of HIV transmission to infants of infected mothers by half in the absence of breast-feeding and is safe for use in the developing world. A one-third reduction in early transmission was found with the same regimen in a breast-feeding population in Abidjan. The findings offer real hope to many developing nations that previously had no realistic options for preventing HIV-infected pregnant women from transmitting infection to

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their babies. CDC is now working with host countries and public health agencies worldwide (including the U.N. International Children's Emergency Fund, UNAIDS, WHO) to help implement the short-course AZT regimen as widely as possible and to examine even newer interventions, such as single-dose treatment with nevirapine. Researchers also continue to study other factors of mother-to-child HIV transmission – for example, breast-feeding's role in HIV transmission in developing countries, where breast-feeding is an important source of nutrition for newborns, and the benefit and feasibility of replacement feeding or early weaning for infants of HIV-infected mothers in different settings.

- ***Developing effective interventions for high-risk populations*** in Côte d'Ivoire and Thailand. Researchers have collaborated with host countries to implement and evaluate HIV prevention interventions among injection drug users, female sex workers, and other populations at risk to provide them with the knowledge and support needed to protect themselves from HIV infection. Many of these interventions have proven effective, particularly programs to increase condom use and treat sexually transmitted diseases among female sex workers.
- ***Identifying possible factors that may confer immunity to HIV***. Collaborating researchers from CDC and the Thai and Ivorian Ministries of Public Health are working to determine how certain groups of female sex workers have remained uninfected despite numerous exposures to HIV. Initial research looked at possible genetic characteristics that might lead to immunity in certain individuals, and current research focuses on the role the immune response to HIV may play in protection from infection. Researchers believe this research could have important implications for the future development of an HIV vaccine.
- ***Working to reduce the impact of HIV/AIDS in developing countries*** through practical treatment regimens. A joint study by CDC and Côte d'Ivoire's Ministry of Public Health found the first evidence that trimethoprim/sulfamethoxazole (TMP/SMX) (commonly referred to as otrimoxazole, Bactrim, or Septra) can significantly reduce the rate of death among HIV-infected tuberculosis patients in Africa. Data from the study demonstrated a 48% reduction in mortality and a 44% reduction in hospitalizations among HIV-infected tuberculosis patients who took TMP/SMX in addition to TB medication. These dramatic findings offer a realistic option to help reduce the overwhelming death toll from HIV in the developing world.
- ***Conducting genetic analyses and collecting surveillance data on genetic variations and drug resistance*** of HIV strains in host countries. Because of the increasing spread of HIV subtypes across international borders, these data may have implications for developing HIV vaccines and for promptly detecting and treating different HIV strains worldwide.
- ***Gathering surveillance data on HIV/AIDS trends*** among sentinel groups – such as female sex workers, pregnant women, STD patients, injection drug users, and children – to use in targeting, developing, and evaluating new interventions.
- ***Evaluating how to improve survival and quality of care for HIV-infected people***, thus diminishing the personal and societal costs of the epidemic.
- ***Investigating HIV-related diseases*** (for example, STDs and tuberculosis) to identify links between these illnesses and to develop effective prevention and treatment strategies that can be applied globally.
- ***Investigating factors associated with heterosexual transmission of HIV***. Worldwide, more people have been infected through heterosexual contact than any other exposure – and in the United

States, heterosexual transmission accounts for a growing percentage of both HIV infections and AIDS cases. Understanding the biomedical and behavioral aspects of heterosexual transmission is the key to containing HIV in this country and around the world.

- ***Supporting an HIV vaccine trial in Thailand***. CDC has two primary roles in an HIV vaccine trial being conducted among injection drug users in Thailand. First, through its longstanding research collaboration with Thailand, CDC has been working for several years to help Thai health officials prepare to implement vaccine studies. Since 1995, CDC has assisted in measuring the level of new infections in Thailand, identifying a group of individuals who are willing to participate in a trial and can be followed over time to evaluate risk behaviors and infection, and working with the community to build the understanding and support necessary to implement the trial. Second, CDC has worked, and will continue to work, with Thai health officials and the U.S. developers of the vaccine, VaxGen, to ensure that individuals in the trial receive appropriate risk-reduction counseling and are fully educated about how the trial works, the potential risks and benefits of participation, and the need for maintaining good behavioral risk-reduction practices during the trial. (CDC also is providing support for a similar efficacy trial sponsored by VaxGen in the United States.)
- ***Collaborating with developing countries on implementing HIV counseling and testing programs using rapid HIV testing technology.*** CDC assistance in the design and implementation of HIV counseling and testing programs includes (1) collaborating on the evaluation of various rapid HIV test kits to determine an appropriate testing algorithm to be used in service delivery settings, (2) assisting with the piloting of the algorithm chosen for service delivery, (3) collaborating on the development or modification of counseling protocols and guidelines used for providing same-day HIV test results, and (4) providing assistance with the development of HIV counselor training materials and courses.

For more information...

CDC National AIDS Hotline:
1-800-342-AIDS
Spanish: 1-800-344-SIDA
Deaf: 1-800-243-7889

CDC National Prevention Information Network (NPIN):
P.O. Box 6003
Rockville, Maryland 20849-6003
1-800-458-5231

Internet Resources:
National Center for HIV, STD, and TB Prevention: http://www.cdc.gov/nchstp/od/nchstp.html
Divisions of HIV/AIDS Prevention: http://www.cdc.gov/hiv
NPIN: http://www.cdcnpin.org
Division of TB Elimination: http://www.cdc.gov/nchstp/tb